WHAT IS CLAIMED IS:

1. A transmission power control method in a UE (User Equipment) for a TDD (Time Division Duplexing) CDMA (Code Division Multiple Access) communication system which transmits a stream of frames from a Node B to the UE, each of the frames including a field indicating power level information transmitted from the Node B and a time slot field for allocating a TPC (Transmission Power Control) command and transmission data from the Node B to the UE, wherein the UE receives data transmitted from the Node B, allocated to a time slot field in a following frame after a transmission pause period where no transmission data exists in the time slot fields in specific frames among the stream of frames transmitted from the Node B to the UE, comprising the steps of:

measuring a propagation loss between the Node B and the UE by receiving the power level information at a specific time slot in the transmission pause period;

measuring an interference noise of the Node B by receiving a specific channel signal broadcast by the Node B;

determining uplink transmission power by summing up (i) values determined by applying a weight based on a length of the transmission pause period to the currently measured propagation loss and an average propagation loss between the Node B and the UE during the transmission pause period, (ii) a predetermined target signal-to-interference ratio (SIR), (iii) the measured interference noise of the Node B, and (iv) an offset for compensating for the propagation loss error; and

transmitting a TPC command corresponding to the determined uplink transmission power to the Node B.

2. The transmission power control method as claimed in claim 1, further comprising the step of determining by the Node B downlink transmission power upon receipt of the TPC command, considering (i) downlink transmission power transmitted at a time slot just before the transmission pause period in the following frame, (ii) the received TPC command and (iii) a power control step to be applied to a corresponding time slot in the following frame.

3. The transmission power control method as claimed in claim 1, wherein the specific channel is a broadcasting channel.

4. A transmission power control method in a UE for a TDD CDMA communication system which transmits a stream of frames from a Node B to the UE, each of the frames including a field indicating power level information transmitted from the Node B and a time slot field for allocating a TPC command and transmission data from the Node B to the UE, wherein the UE receives data transmitted from the Node B, allocated to a time slot field in a following frame after a transmission pause period where no transmission data exists in the time slot fields in specific frames among the stream of frames transmitted from the Node B to the UE, comprising the steps of:

measuring a first propagation loss between the Node B and the UE by receiving

the power level information at a specific time slot in the transmission pause period;

detecting an offset determined considering (i) uplink transmission power used at a time slot just before the transmission pause period, (ii) a second propagation loss between the Node B and the UE at the time slot just before the transmission pause period, (iii) a TPC command received from the Node B at the time slot just before the downlink transmission pause period, and (iv) a change in channel environment between the Node B and the UE; and

determining first uplink transmission power by summing up (a) the uplink transmission power used at the time slot just before the transmission pause period, (b) a value determined by subtracting the second propagation loss from the first propagation loss, and (c) the offset.

5. The transmission power control method as claimed in claim 4, further comprising the steps of:

measuring a first interference noise of the Node B by receiving a specific channel signal broadcast from the Node B at the specific time slot while measuring the first propagation loss;

measuring a second interference noise of the Node B at the time slot just before the transmission pause period, after measuring the first interference noise; and

determining second uplink transmission power by summing up (i) the uplink transmission power, (ii) the value determined by subtracting the second propagation loss from the first propagation loss, (iii) the offset and (iv) a value determined by subtracting

the second interference noise from the first interference noise.

6. The transmission power control method as claimed in claim 4, further comprising the steps of:

measuring an interference noise of the Node B by receiving a specific channel signal broadcast from the Node B at the specific time slot; and

determining third uplink transmission power considering a value determined by summing up (i) values determined by applying a weight based on a length of the transmission pause period to the currently measured first propagation loss and an average propagation loss between the Node B and the UE during the transmission pause period, (ii) a predetermined target SIR and (iii) an offset for compensating for the propagation loss error, and also considering another weight based on the length of the transmission pause period for the first uplink transmission power.

7. The transmission power control method as claimed in claim 4, further comprising the step of, when only a time slot transmitting the data is subjected to beam forming, determining fourth uplink transmission power by summing up (i) uplink transmission power transmitted at the time slot just before the transmission pause period, (ii) a value determined considering compensation for a propagation loss difference between a time slot field subjected to beam forming and a time slot field not subjected to beam forming on a value determined by subtracting the second propagation loss from the first propagation loss, and (iii) the offset.

8. The transmission power control method as claimed in claim 5, further comprising the steps of:

measuring an interference noise of the Node B by receiving a specific channel signal broadcast from the Node B at the specific time slot; and

determining fifth uplink transmission power considering a value determined by summing up (i) values determined by applying a weight based on a length of the transmission pause period to the currently measured first propagation loss and an average propagation loss between the Node B and the UE during the transmission pause period, (ii) a predetermined target SIR, and (iii) an offset for compensating for the propagation loss error, and also considering another weight based on the length of the transmission pause for the second uplink transmission power.

9. The transmission power control method as claimed in claim 5, further comprising the step of, when only a time slot transmitting the data is subjected to beam forming, determining sixth uplink transmission power by summing up (i) uplink transmission power transmitted at the time slot just before the transmission pause period, (ii) a value determined considering compensation for a propagation loss difference between a time slot field subjected to beam forming and a time slot field not subjected to beam forming on a value determined by subtracting the second propagation loss from the first propagation loss, (iii) the offset, and (iv) a value determined by subtracting the second interference noise from the first interference noise.

10. The transmission power control method as claimed in claim 6, wherein the specific channel is a broadcasting channel.

11. A transmission power control apparatus in a UE for a TDD CDMA communication system which transmits a stream of frames from a Node B to the UE, each of the frames including a field indicating power level information transmitted from the Node B and a time slot field for allocating a TPC command and transmission data from the Node B to the UE, wherein the UE receives data transmitted from the Node B, allocated to a time slot field in a following frame after a transmission pause period where no transmission data exists in the time slot fields in specific frames among the stream of frames transmitted from the Node B to the UE, comprising:

an uplink transmission power controller for, upon occurrence of the transmission pause from a specific channel signal received from the Node B, measuring a propagation loss between the Node B and the UE based on power level information received at a specific time slot in the transmission pause period, detecting an interference noise of the Node B from the specific channel signal, and determining uplink transmission power by summing up (i) values determined applying a weight based on a length of the transmission pause period to the currently measured propagation loss and an average propagation loss between the Node B and the UE during the transmission pause period, (ii) a predetermined target SIR, and (iii) an offset for compensating for the propagation loss error;

a downlink TPC command generator for generating a downlink TPC command for controlling downlink transmission power to be transmitted by the Node B at the following frame by receiving uplink transmission power determined by the uplink transmission power controller;

a multiplexer for multiplexing the downlink TPC command, user data to be transmitted to the Node B, and TFCI (Transport Format Combination Indicator) indicating a type and a data rate of the user data; and

a multiplier for multiplying the uplink channel signal by a channel gain based on the determined uplink transmission power.

12. The transmission power control apparatus as claimed in claim 11, wherein the uplink transmission power controller determines the uplink transmission power by measuring a first propagation loss between the Node B and the UE based on power level information received at a specific time slot during the transmission pause period, detecting an offset based on uplink transmission power used at the time slot just before the transmission pause period, a second propagation loss between the Node B and the UE at the time slot just before the transmission pause period, a TPC command received from the Node B at the time slot just before the transmission pause period, and a change in channel environment between the Node B and the UE, and then summing up (i) uplink transmission power used at the time slot just before the transmission pause period, (ii) a value determined by subtracting the second propagation loss from the first propagation loss, and (iii) the offset.

13. A transmission power control apparatus of a Node B in a UE for a TDD CDMA communication system which transmits a stream of frames from a Node B to the UE, each of the frames including a field indicating power level information transmitted from the Node B and a time slot field for allocating a TPC command and transmission data from the Node B to the UE, wherein the Node B transmits data to the UE in a following frame after a transmission pause period where no transmission data exists in the time slot fields in specific frames among the stream of frames transmitted from the Node B to the UE, comprising:

a demultiplexer for demultiplexing an uplink channel signal received from the UE into a downlink TPC command, user data from the UE, and TFCI indicating a type and a data rate of the user data;

a downlink transmission power controller for determining downlink transmission power for the UE based on the downlink TPC command, upon detecting an occurrence of transmission pause;

an uplink TPC generator for generating an uplink TPC command for controlling uplink transmission power to be transmitted to the UE at the following frame by receiving uplink transmission power determined by the downlink transmission power controller;

a multiplexer for multiplexing the generated uplink TPC command, the user data to be transmitted to the UE, and TFCI indicating a type and a data rate of the user data; and

a multiplier for multiplying the downlink channel signal by a channel gain based on the determined downlink transmission power.